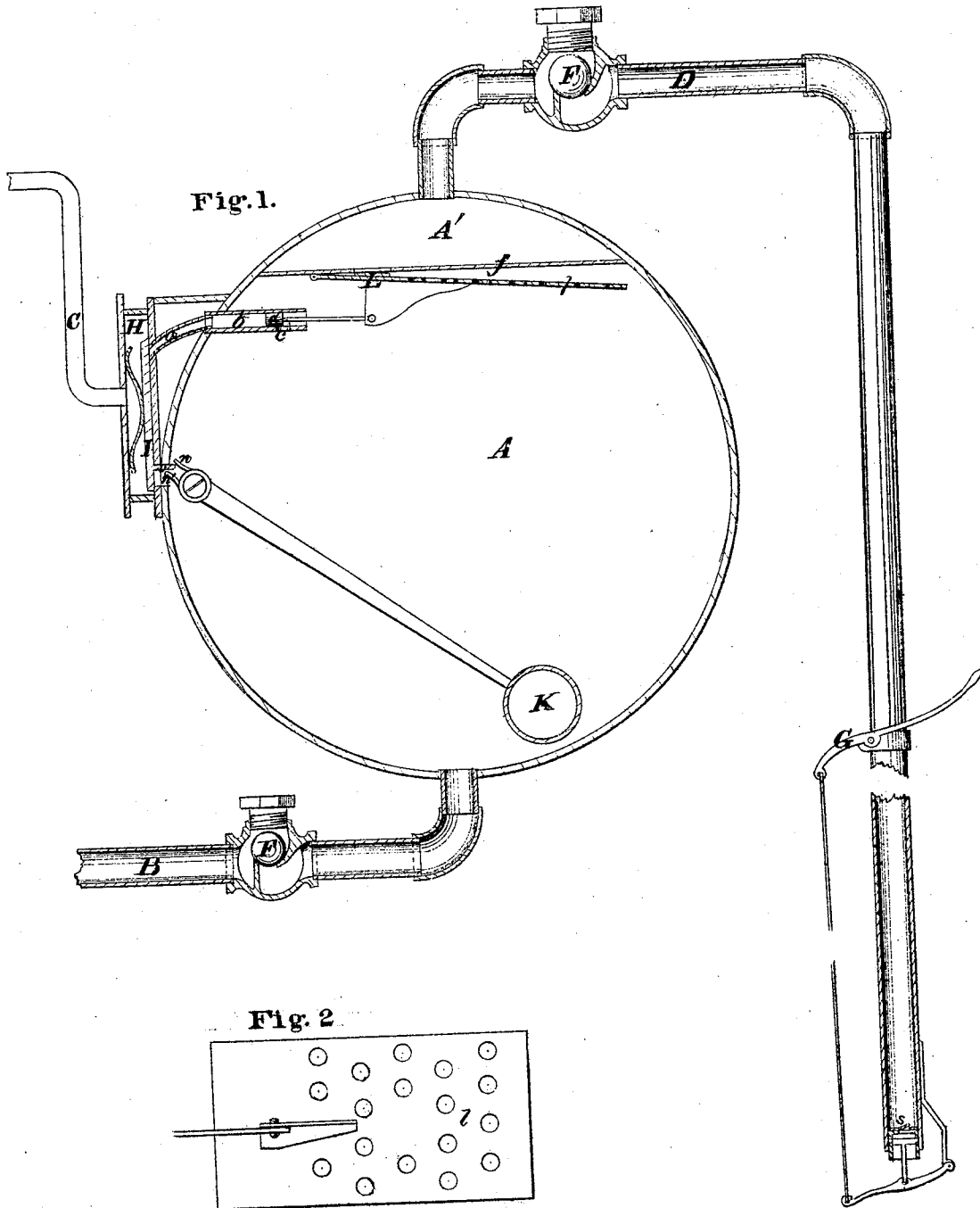


E. H. Goldman,

Boiler Feeder.

No. 100,883.

Patented Mar. 15, 1870.



Witnesses.
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ELISHA H. GOLDMAN, OF CLAYTON, INDIANA.

Letters Patent No. 100,883, dated March 15, 1870

AUTOMATIC BOILER-FEEDER.

The Schedule referred to in these Letters Patent and making part of the same

To all whom it may concern :

Be it known that I, ELISHA H. GOLDMAN, of Clayton, in the county of Hendricks, and State of Indiana, have invented a new and valuable Improvement in Automatic Boiler-Feeders; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a central vertical section of my invention.

Figure 2 is a bottom view of the hinge-valve with its perforated ledge.

My invention relates to automatic boiler-feeders, and consists, mainly, in the construction and novel arrangement of devices designed to keep the water in the boilers of steam-engines always at or about the same height, without constant attention on the part of the engineer.

The letter A of the drawings designates a vacuum-chamber, cylindrical in form. This box is attached to the outside of the boiler, at or near the required water level.

B designates the feed-pipe leading to the boiler.

C, the steam-pipe.

D, water-pipe leading from well or reservoir.

F F, valves.

G, pump attached to the supply-pipe D.

The steam-pipe C is attached to the valve-box H.

I is the valve which closes the steam-port *a*, and is operated by the float K.

The steam-port *a* communicates with the small cylinder *b*, which extends into the interior of the box A. This small cylinder is provided with an opening, *c*, and piston *d*.

The upper part of the box A is separated from the lower portion by the partition *f*, in which is an opening which is closed at times by the valve L.

The upper chamber is lettered A'.

The valve L is hinged to the partition *f*, and pivoted to the connecting-rod of the piston *d*. It is also extended to form an elongated shelf, *l*, which is perforated, so that, when the valve *l* is open, water from the chamber A' will descend in a shower.

The operation of my feeder is automatic, and may be thus described:

The pump G is employed to start the feeder. The water passes into the chamber A', and through the opening in the partition *f*, into the chamber A. As the water rises in this chamber the float K is elevated, until the upper lug *n* on the end of its arm, bearing down on the pin *v* of the valve I, depresses this valve, and thereby opens the steam-port *a*. Steam rushes

at once into the cylinder *b*, and, acting on the piston *d*, forcibly closes the valve L, stopping the supply of water. The steam continues to rush through the orifice *c* until the chamber A is in equilibrium with the boiler, when the water in the chamber will at once settle to its level in the boiler. As the water flows out the float descends, until, by means of the lower lug *n'* on the end of its arm, the valve I is raised sufficiently to close the steam-port *a*, at once releasing the piston *d*. Water descends in a shower from the perforated shelf *l*, condensing the steam in the chamber A, and thereby forming a vacuum, which is filled by the water from the supply-pipe D. The float is now raised again, and the operation repeated until the water in the boiler is on a level with that in the feeder, and the flow ceases. As the water in the boiler lessens in quantity from evaporation the flow commences again from the feeder, and the float descends, as before described. The vacuum is formed in the chamber A, inducing the flow from the supply-pipe D.

The parts of this feeder work with great rapidity, and a complete effect is produced. The water is automatically kept up to its proper height in the boiler. The valves work with force and efficiency, and, when in operation, can be heard by the engineer at some distance.

The pump attached to the supply-pipe can be used for filling the boiler without detaching the feeder, and, by bringing its handle down to its lowest point, the valve *s* is thrown up to its highest position, and there fastened, forming a check-valve, which is desirable.

My invention works as well in cold as in warm weather. No packing is necessary. It is not expensive, and can be readily attached to any boiler.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The hinge-valve L with perforated ledge *l*, operated by the piston *d*, as specified.

2. In combination with the vacuum-chamber A, the hinge-valve L with perforated ledge *l*, the piston *d* and cylinder *b*, as specified.

3. The automatic boiler-feeder herein described, having vacuum-chamber A, float K, slide-valve I, partition *f*, hinge-valve L with perforated shelf *l*, piston *d*, cylinder *b*, and priming-pump G, as specified.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

ELISHA H. GOLDMAN.

Witnesses:

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